FAA AVIATION NEWS

OCTOBER 1970

COVER

The ladies, God bless them,
are taking to the air in droves.
Can they really fly safely?
See p. 10

FAA AVIATION NEWS

DEPARTMENT OF TRANSPORTATION / FEDERAL AVIATION ADMINISTRATION VOL. 9, No. 6

CONTENTS/October 1970

3 Bogus Bargains

4 In the Green

6 Inspection Aids: Nose Gear Shudder

7 Current Status of FARs

8 Taxing an Aircraft

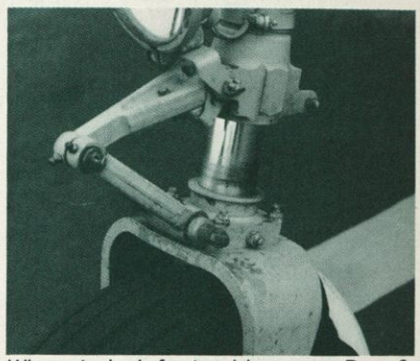
10 How Safe is That Lady in the Cockpit?

12 Famous Flyers: Glenn Curtiss—The Fastest Man of the Earth and Sky

13 Pilot Briefs

14 News Log: New Data on Aircraft Balance . . . General Aviation Pilots, Mechanics to Outstrip Airlines . . . Guidelines on Transporting Radioactive Materials in Aircraft . . . Helicopter Scholarship Offered

15 Flight Forum



Where to look for trouble. Page 6.

A little something extra. Page 8.

John A. Volpe, *Secretary of Transportation*

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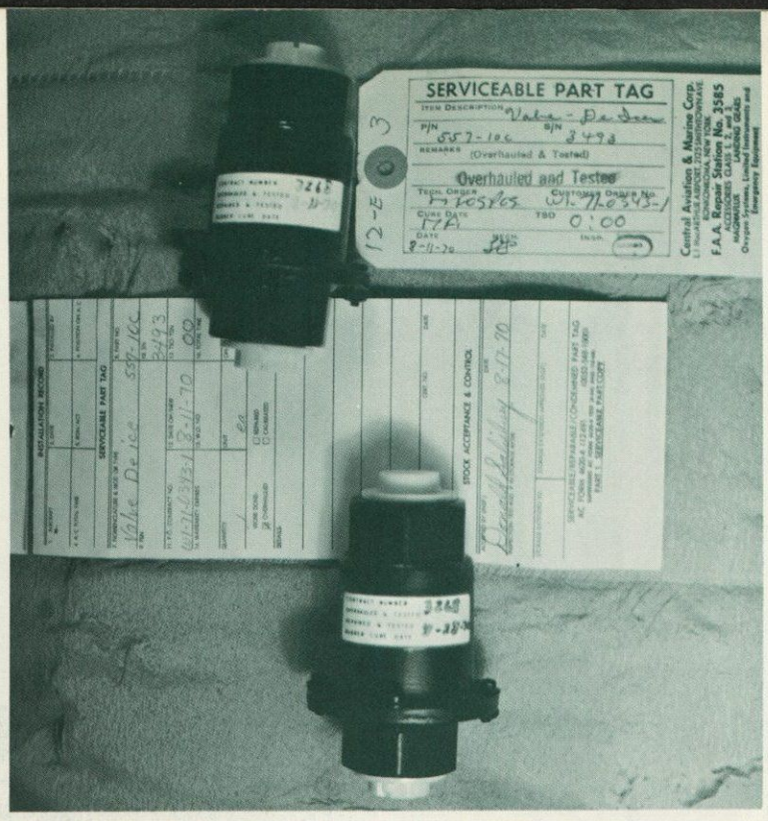


Valve De-Icer, overhauled and placed in an airworthy condition. Without the Serviceable Part Tag, extent of overhaul is unknown.

BOGUS BARGAINS

He had almost omitted the engine runup at the edge of the runway, after having spent the entire morning fussing like a mother hen over his nearly new, recently bought Cherokee. He had carefully changed the oil, cleaned the filters, inspected the fuel lines inch by inch and replaced the spark plugs.

So he was more than a little surprised now to see an rpm drop of 250 on the left magneto and even more on the right. He taxied the aircraft back to the fixed base operator and lifted the cowl. The FBO boss took one quick look at the engine and snorted, "Where did you get them plugs?"

With some embarrassment the thrift-minded new owner admitted he had bought a set of spark plugs at a nearby surplus store—". . . they were guaranteed unused, the exact same type as in the airplane, only the manufacturer was different. . . ."

The manufacturer turned out to be an obscure foreign firm, whose product had never been approved by the engine maker. Outwardly "identical" to the approved plug, the surplus bargain had a much lower core nose temperature range and was not suitable for the Cherokee under most conditions of flight. Fortunately the new plane owner learned his lesson on the ground: when it comes to buying replacement parts for an aircraft, the magic words are *caveat emptor!* —buyer beware!

There is no law against buying replacement parts for an aircraft from bargain sources—from salvage or surplus outlets as well as from purveyors of discounted stocks. Federal Aviation Regulations (Part 43.13) place the responsibility squarely on the person doing the maintenance work for ascertaining that the affected unit will be ". . . at least equal to its original or properly altered condition. . . ."

Pilot Maintenance

When parts are replaced by a certificated mechanic or repair station, the likelihood of inferior equipment being accepted is small. Professional maintenance workers are usually thoroughly aware of variations in workmanship and design of aircraft parts and go pretty much by the book—the manufacturer's specifications or FAA approvals. It is the pilot who undertakes his own preventive maintenance who is most likely to be tempted by bargain prices on spare parts.

The list of parts a pilot can install himself under preventive maintenance includes such items as batteries, tires, wheels, oil, fabric, dope, light bulbs (landing gear and position lights) as well as spark plugs. The fact that their installation does not require approved mechanical training does not imply that they are of little importance to flight safety. Standards of performance given in Part 43.13 apply here as well. Failure of any of these parts could lead to a critical situation in flight.

FAA has become aware that an increasing amount of replacement parts and materials being offered for sale as aircraft quality may not be acceptable for use on certificated aircraft. Their inadvertent use could lead to serious accidents. The eligibility of replacement parts for certificated aircraft may be officially established by:

1. An FAA Form 8130-3, Airworthiness Approval Tag. It identifies a part approved by authorized FAA representatives.
2. An FAA Technical Standard Order (TSO) number and identification mark indicating the part has been manufactured as required by FAR Part 37.
3. An FAA/PMA (Parts Manufacturer Approval) symbol stamped on the part. Stamp also identifies the type certificated aircraft eligible for the part.
4. A shipping ticket or invoice, showing the part was produced by a manufacturer holding an FAA Production Certificate.
5. A certificate of airworthiness for export, issued by a foreign government.

Hidden Defects

Spare parts that are not identified by one of these forms of certification may be used only after thorough testing by the person performing the maintenance. Physical comparison with approved parts is not enough. Deterioration of the part due to exposure to excessive heat or corrosive liquids may not always show up on the surface. Components of aircraft that have burned on crashing or have been submerged in salt water are sometimes salvaged, cleaned up and offered for sale. Unusually long "shelf life" can bring about subtle deterioration when the conditions of storage are not ideal.

Occasionally a manufacturer has "duplicated" an aircraft part with only a sample of the approved part to guide him in his production. Drawings, specifications or manufacturing processes such as heat treatment, plating and grinding, or the precise raw materials used in the authentic part are not known to the duplicator; consequently unknown factors which are important criteria in assuring airworthiness may have been ignored. The part may not be discovered to be defective until it brings about an inflight crisis.

Bench testing or ground testing of spare parts is simply not practical for most pilots —in which case the cardinal rule is, "When in doubt, do without," When an approved or properly tested replacement part cannot be obtained, the only safe course is to ground the aircraft.

Although a desire to be economical in aircraft maintenance is understandable, the use of unproven materials is the poorest kind of economy: an unnecessary safety risk. Don't buy trouble. ■

A swift glance after engine start-up is all the attention some pilots ever give to the oil pressure or temperature gauges. Skilled pilots learn to include them in their periodic visual sweep of the instrument panel—with good reason.

IN THE GREEN

When the oil gauge needles drop out of the safe operating range, only a few seconds may separate you from sudden engine stoppage or destruction. Know what to expect and do.

Few things are more taken for granted than the dependability of aircraft engines. Turn the switch, light the fire and off into the blue you go for hours at a time. Rarely is there a thought to the mill up front that keeps spinning off the rpm's with the smooth perfection of a well mannered sewing machine.

All instruments in the green and everything serene—until that awful moment when the pointer on the oil pressure gauge abruptly sinks to zero, or the oil temperature creeps up to and beyond the red line that marks the frontier of safety.

Any change in the normal range for each of these instruments is a cause for immediate concern, but not for panic. The instruments themselves may be at fault, so a comparison of the reading of one against the other is the first order of business. Any sharp deviation in oil pressure will almost inevitably be accompanied by a rise in oil temperature. A sudden rise in oil temperature will also usually be matched by a drop or surge of oil pressure within a few moments. If one gauge remains centered in the green while the other fluctuates severely, instrument failure may be suspected.

If the pressure is dropping and temperature is rising, an internal failure of some component of the engine is a likely consideration. This could include a failed bearing, burned piston, a leak in the oil system, a crack in an oil line, or even a low level in the oil supply at the beginning of the flight. *Reduce power and land at the first opportunity.*

An abrupt and total loss of oil pressure is a red flag warning of imminent engine failure. This could be the result of complete loss of the oil supply caused by an unsaftied drain plug working loose, broken shear pin in the oil pump or massive blocking of the screens, to name some possibilities. The engine must be shut down at once and a forced landing made. Complete loss of oil pressure *precedes by only a few minutes* total destruction of the engine and possible inflight fire if the prop is not stopped at once.

Inflight Measures

Abnormally high oil temperature readings could mean that the oil cooling system is clogged, permitting the heated oil (after its passage through the engine) to return uncooled to the system. If the temperature edges into the red, power should be reduced and cowl flaps opened. If this does not reduce the elevated temperature, or hold it steady, an immediate landing is mandatory.

Pilots flying the same aircraft on a regular basis have an advantage over those who fly it only occasionally—the few hours-a-month pilot-owner, for example, or pilots of rental aircraft. With regular use of the same plane the pilot develops a familiarity with the engine characteristics and is in a position to note progressive changes in engine instrument readings.

As the hours pile up in the engine logbook, the normal operating temperature will tend to rise, indicating a general deterioration of the mechanism and internal fouling due to normal aging (or use of the wrong kind of oil, in some cases). This is a cumulative process which is affected by how hard the engine is run (agricultural flying is especially demanding), geographic area of operation (dusty regions are hard on engines), and the degree of adherence to the engine manufacturer's recommendations.

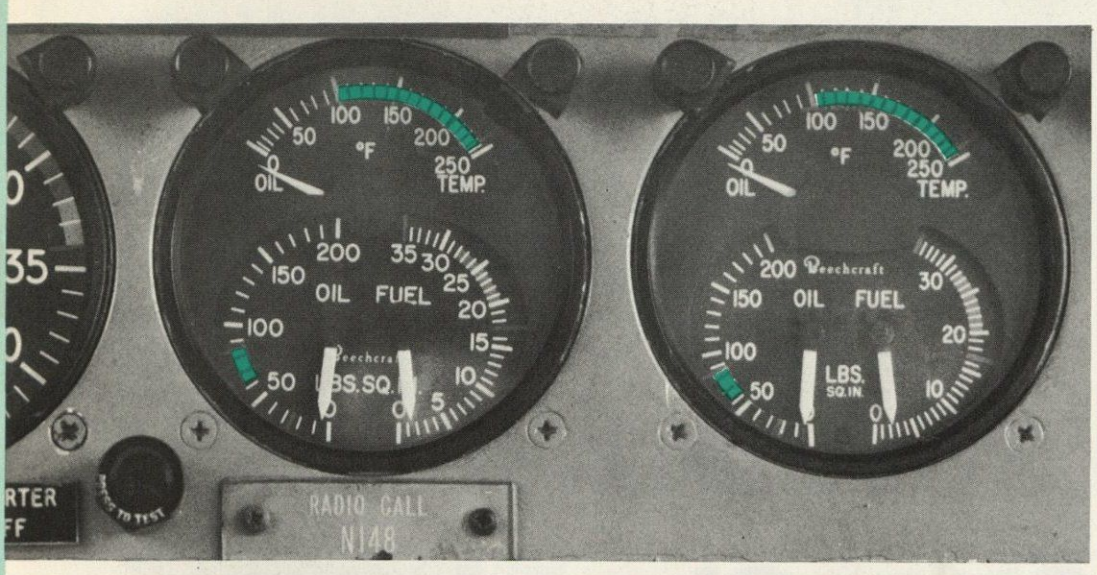
Aircraft engine oil systems are of two types—wet or dry sump; the wet sump type is the most widely used. All radial engines, and some of the larger "flat" engines, are dry sump engines; that is, the oil supply is located in a tank separate from the engine. The oil supply in a wet sump engine is contained in the crankcase. Oil reaches the vital moving parts of the engine under pressure through a series of finely machined passages comparable to the artery and vein system in the human body, with the oil pump roughly comparable to the heart.

Within seconds after engine start-up, oil is coursing through the passages, even though this might not be immediately apparent on the oil pressure or oil temperature gauges. This is particularly true in cold weather. How much time to allow for the instruments to "come in" is determined by manufacturer's recommendations and should be strictly observed. The engine maker also provides a table of engine oil weights for best performance under various outside air temperatures, and also the *type* of oil best suited for the engine. Many recommend specific brand names.

Oil research in aviation use, stimulated by military operations on many fronts, has produced new types of oil especially suited for the high performance aircraft engines now in common use. There are now four basic types of aviation engine oils.

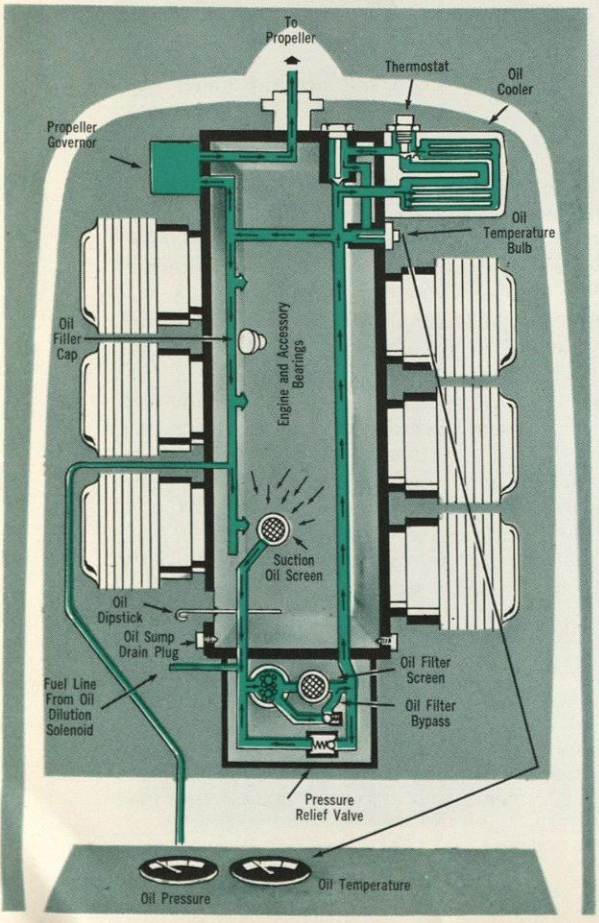
"Regular" or "non-detergent" mineral oil is preferred by some manufacturers for first 50 to 100 hours of engine life, as it appears to seat the rings more quickly. It has, however, many disadvantages for continued use; its viscosity is drastically affected by temperature changes, making for sluggish starts and excess wear in cold weather, and reduced lubrication in hot weather.

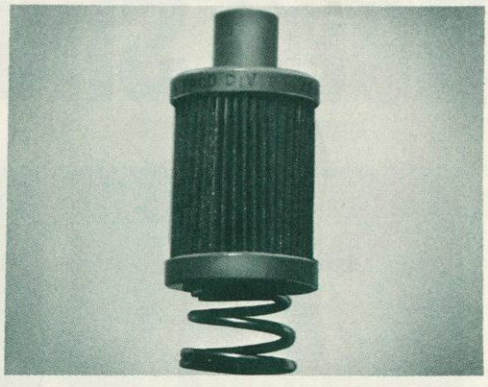
Detergent oils have a better viscosity.



Above—typical aviation oil gauges (combined with fuel supply indicator). On this aircraft, a Queen Air, safe operating oil pressure range is 65 to 85 lbs./s9 in. Green area for oil temperature is 100 to 235 degrees.

Below—diagram of typical wet sump lubrication system for general aviation. Arrows indicate direction of oil flow. Oil is drawn from crankcase sump by engine driven pump, passed through oil cooler system and then directed through narrow channels to engine working parts. Bypass valves relieve pressure from clogged screen. Thermostat control bypasses oil around cooler during engine start-up. Pistons are also lubricated by splash action in crankcase. **Right**—typical oil filter for Aero Turbo Commander.





They also have the advantage of being able to dissolve and hold in fine particle suspension the products of oil oxidation and combustion residues. These destructive products are thus prevented from being deposited on the various engine parts or from forming sludge which could block oil passages or pile up on screens and oil by-pass valve seats. The objectionable substances are drained out of the engine during normal oil change.

As good and as efficient as they are, detergent oils have a potentially dangerous and expensive drawback. Adding detergent oil to non-detergent oil already in the crankcase could start a process that would dislodge massive quantities of carbon and other combustion products already adhering to engine internal parts. Once freed by detergent action, these particles could be swept along with the oil flow through the tiny oil passages—some as small as $\frac{1}{32}$ of an inch—with the ever-present possibility of clogging the passages. The dislodged particles, gathering together by molecular and physical action into a large mass, could jam oil by-pass valves and pile up against screens, obstructing the free flow of oil or collapsing the screen. This could lead to an expensive engine overhaul, or worse yet, an inflight engine failure.

Fortunately, the reverse is not true. Non-detergent oil added to a quantity of detergent oil merely dilutes the effectiveness of the detergent concentration, a circumstance which can be remedied with the addition of detergent oil as the need for normal oil replenishment arises.

When a deliberate decision is made to switch from a non-detergent to a detergent oil in an older engine, the engine should be pulled out of service and given an overhaul. Failure to do so is an invitation to an inflight engine failure.

New Types of Oil

Ashless dispersant oils are similar to detergent oils with one important difference: the harsh cleansing chemicals are replaced by one that picks up carbon in minute particles and holds them suspended in the oil, preventing the formation of carbon or sludge. Ashless dispersant oils will keep a clean engine clean, but it will not clean a dirty one, as do the detergent oils.

Synthetic oils now on the market perform exceptionally well in very cold weather—some have a pour point of about —40°F. The cost is several times higher than that of other oils, and the engine manufacturer should be consulted about its use.

The drain plug of an oil sump is easily accessible to the pilot. Many plugs are equipped with a built-in magnet which will trap and hold ferrous metal particles. The residue in the cup-like recess in the drain plug should be closely examined. The trapped oil and sludge should be rubbed between thumb and forefinger to determine whether metallic particles are present as an indication of excessive wear.

A more sophisticated method of examining the internal health of an engine is provided by *spectrometric oil analysis,* long in use by air carriers and the military. Samples of oil from individual engines are analyzed on an emission-type direct-reading spectrometer. An electric spark vaporizes a sample of all the elements present and causes their atoms and ions to emit light of wavelengths characteristic to iron, nickel, chromium, or other elements.

All told, the machine measures 16 key elements found in normal aviation lubrication oil. Disproportionate amounts of various elements could call for immediate engine overhaul. In addition, analysis under this system will also reveal contamination of the oil caused by broken rings, poor combustion, excessive choking, bad timing and improper fuel mixture.

When engine performance begins to slide, as indicated by falling airspeed, poor climb performance, etc., as well as by higher oil pressure or temperature readings, a likely place to start looking for the source of the trouble is in the engine oil. It is the life blood of the engine, and to the practiced eye reveals many clues to the inmost working processes of an engine. ■

(First of a two-part article on aircraft engine oils. Part two will deal with pilot preventive maintenance.)

INSPECTION AIDS 2.

A new series on maintenance problems of general aviation aircraft.

Before you walk away from a hard landing, inspect the landing gear, especially the nose wheel fork assembly. Look for tiny cracks, symptoms of metal fatigue.

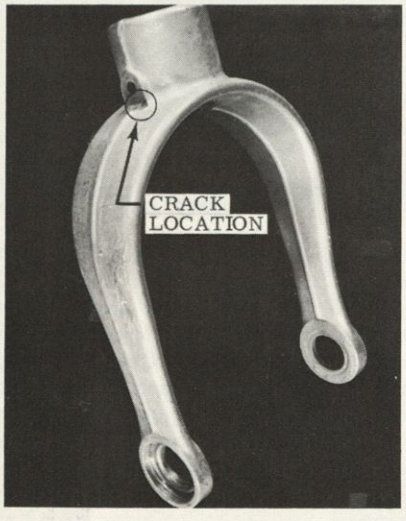
Nose Gear Shudder

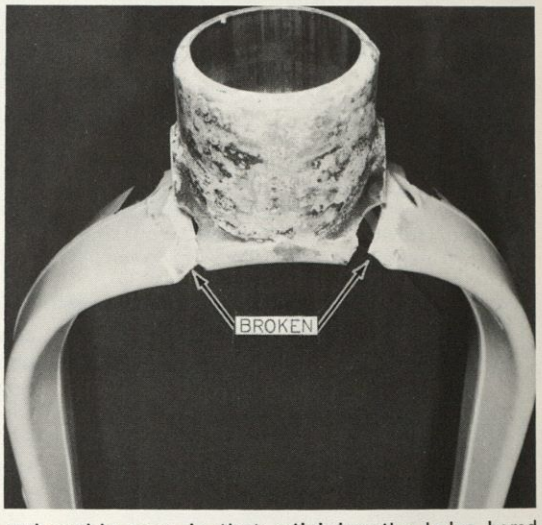
The fork assembly that supports the nose wheel on some types of light aircraft is reported (Inspection Aids Supplement No. 11, July, 1970) to have failed on touchdown or roll-out following a hard landing. Excessive side-load shuddering or shimmy apparently weakened the assembly prior to the accident. The area just below the bolt attachment holes should be examined frequently—especially if the aircraft has been observed landing hard—for tiny cracks indicative of metal fatigue. Use of fluorescent penetrant or dye penetrant inspection may help reveal these cracks. A magnifying glass will also help.

Either careless operation or poor maintenance may contribute to overstressed nose wheel fork assemblies. Landing "on the nose" (placing the weight on the nose wheel before the main gear is supporting the aircraft) is one of the obvious sins of the novice pilot which upsets aircraft owners. Failing to straighten out a crab angle before touching down also can set up a harmful shimmy and misalign the nose gear.

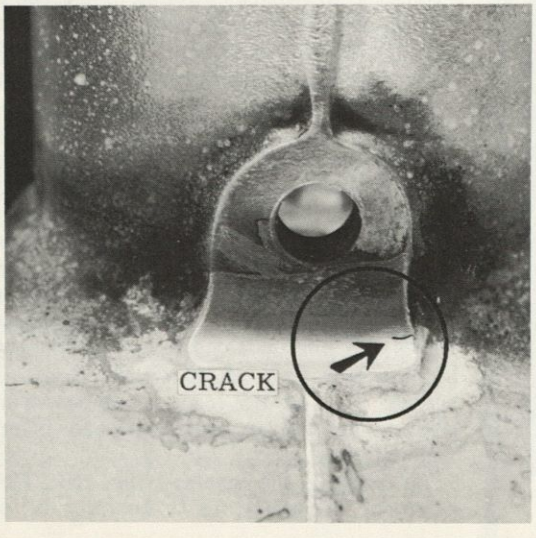
Harmful nose wheel shimmy also may develop as a result of incorrect tire and strut pressure, incorrect tire and wheel balance, improper wheel alignment, improper use of tow bars in ground handling, or looseness in steering arms and linkages. Whatever the source of the shimmy, it should be brought to the attention of a certificated mechanic. Continuing to fly an airplane in this condition will accelerate metal fatigue in the fork assembly and may lead to an unhappy and expensive landing.

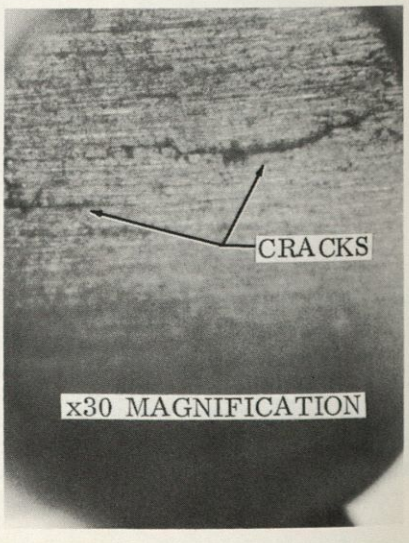
(Complete sets of FAA Inspection Aids reports on general aviation are available from the Superintendent of Documents, Washington, D.C., 20402. Domestic subscription is $3.00, foreign $3.75.)





On a typical fork assembly, the most vulnerable area is that adjoining the holes bored through the cylindrical housing just above the yoke. Any signs of stress fatigue should be reported to a licensed mechanic. Keep the area clean, to facilitate inspection.





FARs

STATUS of the FEDERAL AVIATION REGULATIONS

September 25, 1970

ALL DONE! With the issuance of Volumes IV, VII and IX, FAA's program of collecting the Federal Aviation Regulation Parts into 11 volumes of interrelated Parts is completed.

The FAR volumes are available at the prices indicated from the Superintendent of Documents, Washington, D. C. 20402. Individual Parts and changes (transmittals) may only be acquired by subscribing to the volume containing that Part.

FAA VOLUME/PART	TITLE	PRICE
Vol. I: (Transmittal 1)		
Part 1:	Definitions and Abbreviations	$1.50 + 50¢ foreign mailing
Vol. II: (Transmittals 1-9)		$8.00 + $2.00 foreign mailing
Part 11	General Rule-making Procedures	
Part 13	Enforcement Procedures	
Part 15	Nondiscrimination in Federally Assisted Programs of the FAA	
Part 21	Certification Procedures for Products and Parts	
Part 37	Technical Standard Order Authorizations	
**Part 39	Airworthiness Directives	
Part 45	Identification and Registration Marking	
Part 47	Aircraft Registration	
Part 49	Recording of Aircraft Titles and Security Documents	
Part 183	Representatives of the Administrator	
Part 185	Testimony by Employees and Production of Records in Legal Proceedings and Service of Legal Process and Pleadings	
Part 187	Fees	
Part 189	Use of Federal Aviation Administration Communications System	
Vol. III:		$5.50 + $1.50 foreign mailing
Part 23	Airworthiness Standards: Normal, Utility and Acrobatic Category Airplanes	
Part 25	Airworthiness Standards: Transport Category Airplanes	
Part 36	Noise Standards: Aircraft Type Certification	
Vol IV:		$3.50 + 75¢ foreign mailing
Part 27	Airworthiness Standards: Normal Category Rotocraft	
Part 29	Airworthiness Standards: Transport Category Rotocraft	
Part 31	Airworthiness Standards: Manned Free Balloons	
Part 33	Airworthiness Standards: Aircraft Engines	
Part 35	Airworthiness Standards: Propellers	
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Part 145	Repair Stations	
Part 149	Parachute Lofts	
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Part 93	Special Air Traffic Rules and Airport Traffic Patterns	
Part 99	Security Control of Air Traffic	
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Part 143	Ground Instructors	
Part 147	Mechanic Schools	
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Part 155	Release of Airport Property from Surplus Property Restrictions	
Part 159	National Capital Airports	
Part 165	Wake Island Code	
Part 167	Annette Island, Alaska, Airport	
Vol XI: (Transmittals 1-4)		$2.75 + 75¢ foreign mailing
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*Part 73	Special Use Airspace	
*Part 75	Establishment of Jet Routes	
Part 77	Objects Affecting Navigable Airspace	
**Part 95	IFR Altitudes	
**Part 97	Standard Instrument Approach Procedures	
Part 157	Notice of Construction, Alteration, Activation and Deactivation of Airports	
Part 169	Expenditure of Federal Funds for Nonmilitary Airports or Air Navigation Facilities Thereon	
Part 171	Non-Federal Navigation Facilities	

* Changes to individual airspace designations and airways descriptions, individual restricted areas and individual jet route descriptions are not included in the basic Parts 71, 73 and 75, respectively, because of their length and complexity. Such changes are published in the Federal Register and are included on appropriate aeronautical charts.

** Due to the complexity, length, and frequency of issuance, airworthiness directives, enroute IFR altitudes and standard instrument approach procedures are published in the Federal Register and are not included in basic Parts 39, 95 and 97. In addition, enroute IFR altitudes and instrument approach procedures are depicted on aeronautical charts.

Standard instrument approach procedures are published in the Federal Register by reference to FAA documents which are available for examination at the Rules Docket (GC-24) and the National Flight Data Center, in FAA Headquarters, Washington, D. C. and at FAA Regional offices and Flight Inspection District Offices.

TAXING AN AIRCRAFT

When and Where and How the Money Goes

There are now three kinds of Federal taxes which affect the aviation community, following enactment of Public Law 91-258 (Airport and Airway Development Act). The *use tax* must be paid by every owner of a powered civil aircraft used during the tax year. The *fuel tax* is paid at the pump by operators of aircraft not classified as engaged in commercial air transport. *Transportation taxes* are levied on passengers and freight transported on commercial air carriers, who do not pay a fuel tax.

The administration of these new taxes lies in the hands of the Internal Revenue Service, which should be consulted on any particular interpretation of the law. This article is intended for general guidance only. Individual tax liability is a matter of individual responsibility.

The new aircraft use tax should not be confused with FAA *aircraft registration eligibility* reports (AC-8050-73), which are sent directly to aircraft owners by FAA each year. Registration reports are used to determine the actual number and types of U.S. aircraft in existence, in use or otherwise. These reports must be returned even though the aircraft is no longer in existence or has changed ownership. Send them to FAA Aircraft Registry, AC-259, P. O. Box 26045, Oklahoma City, Okla. 73126. There is no tax or fee involved.

This eligibility report is distinct from the *registration certificate* (AC-8050-1), issued by FAA to the owner of an aircraft. The $5 fee is paid to FAA.

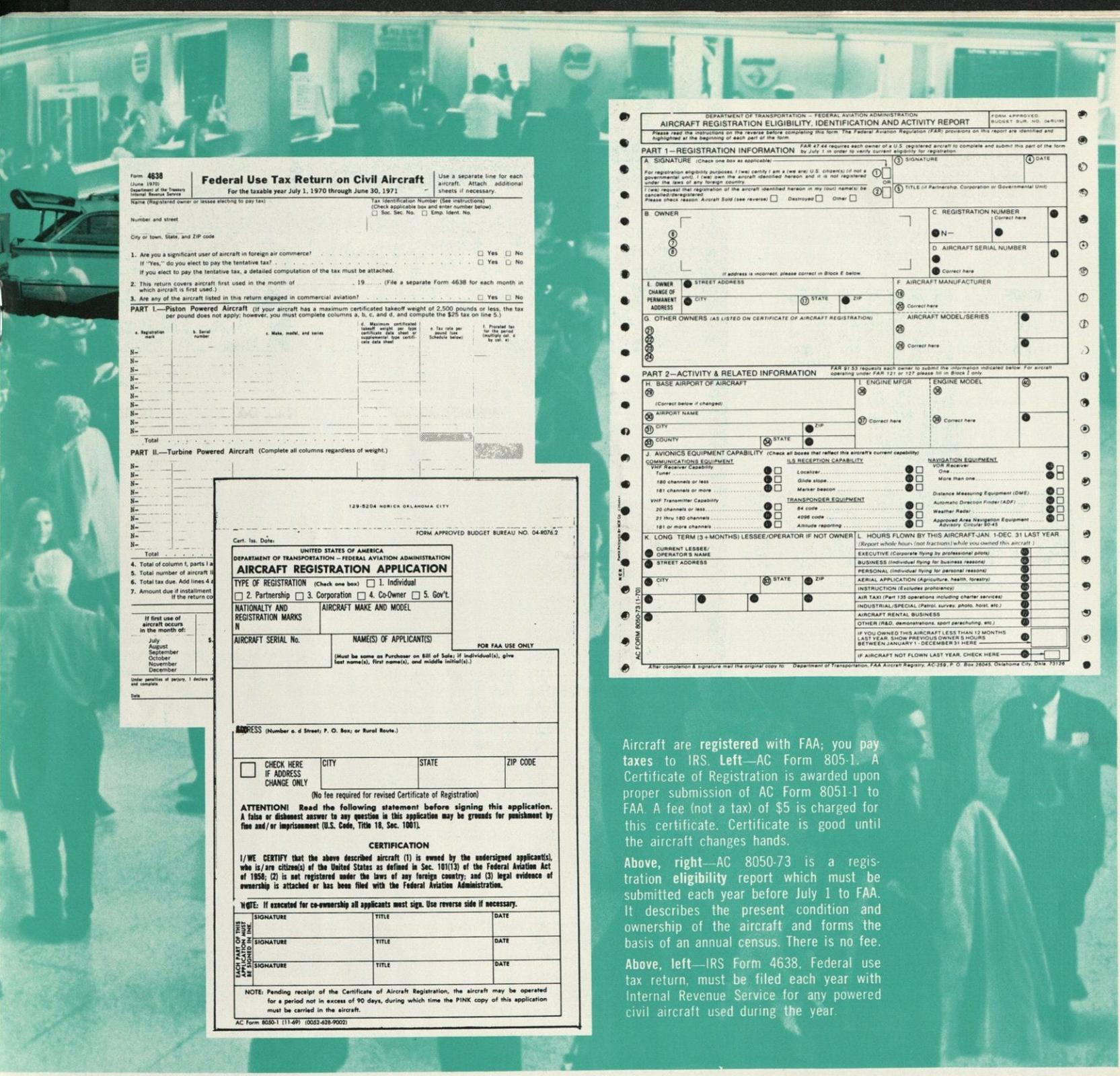
All tax forms are issued by IRS, and payments should be sent to the appropriate Internal Revenue Service office—either to the local office, or in the case of use taxes, to the IRS Service Center in Austin, Texas. Note that the use tax year begins on July 1, and the registered owner of the aircraft as of this date is responsible for paying the tax if it is flown thereafter—either by himself or by any person to whom he might loan, sell or lease the aircraft.

A change of ownership during the tax year does not call for an additional tax payment, nor does it relieve the seller from tax liability for the current fiscal year. If actual use of the aircraft does not begin until August 1 or later, the poundage payment may be prorated; that is, reckoned proportionally from the first day of the month in which the plane is first used. A pro rata schedule is found on the tax form.

A tax on fuel is levied at the pump on all civil aircraft except those engaged in commercial air transportation operations as defined in the table. Jet fuels are taxed at the same rate as aviation gasoline—7 cents per gallon. Note that general aviation aircraft engaged in non-transportation commerce—such as aerial application, towing advertising signs, etc.,—must pay the fuel tax. In the former case, however, the farmer contracting with the aerial applicator may claim

FEDERAL AVIATION TAX PAYMENT INFORMATION

	AIRCRAFT USE TAX	FUEL TAX	TRANSPORTATION TAX
WHAT IS IT?	Tax on use of civil aircraft similar to auto license fee	Tax on aircraft fuel	Tax on commercial air transportation
WHAT IS TAXED?	All U.S registered aircraft (engine-driven) flown during tax year (July 1-June 30)	All fuels used in aircraft not subject to Transportation Tax	Passengers, cargo on all scheduled airlines and on non-scheduled or chartered commercial flights in aircraft over 6,000 lbs. gross.
WHO PAYS IT?	Aircraft owner	Aircraft operator	Passenger, shipper
HOW MUCH?	A. 2500 lbs. or under: $25. B. Piston aircraft over 2500 lbs.: $25 plus 2 cents/lb. C. Turbine aircraft: $25 plus 3.5 cents/lb.	Gasoline: 7 cents/gal. Kerosene or other jet fuel: 7 cents/gal.	Domestic fares — 8% Freight waybills — 5% Passengers going abroad — $3. per person instead of 8% as above. All expense charters 8% of charter fare
WHEN IS IT PAID?	Annually, within the calendar month following the first month of usage after June 30; or in installments (see tax form)	At the pump	Time of purchase
HOW?	IRS Form 4648	Added to price	Added to ticket, or waybill
TO WHOM?	IRS (not FAA), 3651 S. Interregional Highway Austin, Texas 78740	Seller or manufacturer collects tax for IRS	Carrier collects tax for IRS
EXEMPTIONS	New aircraft on inventory	Aircraft owned and operated by state and local government; or by nonprofit educational institutions. Aerial applicators (farming). International flight. Military aircraft.	International air freight



Form 4638 (June 1970) Department of the Treasury Internal Revenue Service

Federal Use Tax Return on Civil Aircraft

For the taxable year July 1, 1970 through June 30, 1971

Use a separate line for each aircraft. Attach additional sheets if necessary.

Name (Registered owner or lessee electing to pay tax) | Tax Identification Number (See instructions) (Check applicable box and enter number below) ☐ Soc. Sec. No. ☐ Emp. Ident. No.

Number and street

City or town, State, and ZIP code

1. Are you a significant user of aircraft in foreign air commerce? ☐ Yes ☐ No
   If "Yes," do you elect to pay the tentative tax? ☐ Yes ☐ No
   If you elect to pay the tentative tax, a detailed computation of the tax must be attached.
2. This return covers aircraft first used in the month of ..... 19..... (File a separate Form 4638 for each month in which aircraft is first used.)
3. Are any of the aircraft listed in this return engaged in commercial aviation? ☐ Yes ☐ No

PART I.—Piston Powered Aircraft (If your aircraft has a maximum certificated takeoff weight of 2,500 pounds or less, the tax per pound does not apply; however, you must complete columns a, b, c, and d, and compute the $25 tax on line 5.)

a. Registration mark	b. Serial number	c. Make, model, and series	d. Maximum certificated takeoff weight per type certificate data sheet or supplemental type certificate data sheet	e. Tax rate per pound (see Schedule below)	f. Prorated tax for the period (multiply col. d by col. e)
N–					
N–					
N–					
N–					
N–					
N–					
N–					
N–					
N–					
N–					
Total					

PART II.—Turbine Powered Aircraft (Complete all columns regardless of weight.)

N–					
N–					
N–					
N–					
N–					
N–					
N–					
N–					
N–					
N–					
Total					

4. Total of column f, parts I a
5. Total number of aircraft li
6. Total tax due. Add lines 4 a
7. Amount due if installment
   If the return co

If first use of aircraft occurs in the month of: July, August, September, October, November, December — $

Under penalties of perjury, I declare th and complete.

Date

129-5204 NORICK OKLAHOMA CITY

FORM APPROVED BUDGET BUREAU NO. 04-R076.2

Cert. Iss. Date:

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION — FEDERAL AVIATION ADMINISTRATION

AIRCRAFT REGISTRATION APPLICATION

TYPE OF REGISTRATION (Check one box) ☐ 1. Individual ☐ 2. Partnership ☐ 3. Corporation ☐ 4. Co-Owner ☐ 5. Gov't.

NATIONALITY AND REGISTRATION MARKS N	AIRCRAFT MAKE AND MODEL
AIRCRAFT SERIAL No.	NAME(S) OF APPLICANT(S) (Must be same as Purchaser on Bill of Sale; if individual(s), give last name(s), first name(s), and middle initial(s).)

FOR FAA USE ONLY

ADDRESS (Number and Street; P. O. Box; or Rural Route.)

☐ CHECK HERE IF ADDRESS CHANGE ONLY	CITY	STATE	ZIP CODE

(No fee required for revised Certificate of Registration)

ATTENTION! Read the following statement before signing this application. A false or dishonest answer to any question in this application may be grounds for punishment by fine and/or imprisonment (U.S. Code, Title 18, Sec. 1001).

CERTIFICATION

I/WE CERTIFY that the above described aircraft (1) is owned by the undersigned applicant(s), who is/are citizen(s) of the United States as defined in Sec. 101(13) of the Federal Aviation Act of 1958; (2) is not registered under the laws of any foreign country; and (3) legal evidence of ownership is attached or has been filed with the Federal Aviation Administration.

NOTE: If executed for co-ownership all applicants must sign. Use reverse side if necessary.

EACH PART OF THIS APPLICATION MUST BE SIGNED IN INK

SIGNATURE	TITLE	DATE
SIGNATURE	TITLE	DATE
SIGNATURE	TITLE	DATE

NOTE: Pending receipt of the Certificate of Aircraft Registration, the aircraft may be operated for a period not in excess of 90 days, during which time the PINK copy of this application must be carried in the aircraft.

AC Form 8050-1 (11-69) (0052-628-9002)

DEPARTMENT OF TRANSPORTATION — FEDERAL AVIATION ADMINISTRATION

AIRCRAFT REGISTRATION ELIGIBILITY, IDENTIFICATION AND ACTIVITY REPORT

FORM APPROVED BUDGET BUR. NO. 04-R1185

Please read the instructions on the reverse before completing this form. The Federal Aviation Regulation (FAR) provisions on this report are identified and highlighted at the beginning of each part of the form.

PART 1—REGISTRATION INFORMATION *FAR 47.44 requires each owner of a U.S. registered aircraft to complete and submit this part of the form by July 1 in order to verify current eligibility for registration.*

A. SIGNATURE (Check one box as applicable) — 3 SIGNATURE — 4 DATE

For registration eligibility purposes, I (we) certify I am a (we are) U.S. citizen(s) (if not a governmental unit). I (we) own the aircraft identified hereon and it is not registered under the laws of any foreign country. ① OR ②

I (we) request that registration of the aircraft identified hereon in my (our) name(s) be cancelled/deregistered. Please check reason: Aircraft Sold (see reverse) ☐ Destroyed ☐ Other ☐ — 5 TITLE (If Partnership, Corporation or Governmental Unit)

B. OWNER — C. REGISTRATION NUMBER (Correct here) N– — D. AIRCRAFT SERIAL NUMBER (Correct here)

If address is incorrect, please correct in Block E below.

E. OWNER CHANGE OF PERMANENT ADDRESS — STREET ADDRESS — CITY — STATE — ZIP

F. AIRCRAFT MANUFACTURER (Correct here)

G. OTHER OWNERS (AS LISTED ON CERTIFICATE OF AIRCRAFT REGISTRATION) — AIRCRAFT MODEL/SERIES (Correct here)

PART 2—ACTIVITY & RELATED INFORMATION *FAR 91.53 requests each owner to submit the information indicated below. For aircraft operating under FAR 121 or 127 please fill in Block I only.*

H. BASE AIRPORT OF AIRCRAFT (Correct below if changed) — AIRPORT NAME — CITY — STATE — ZIP — COUNTY

I. ENGINE MFGR (Correct here) — ENGINE MODEL (Correct here)

J. AVIONICS EQUIPMENT CAPABILITY (Check all boxes that reflect this aircraft's current capability)

COMMUNICATIONS EQUIPMENT: VHF Receiver Capability — Tuner; 180 channels or less; 181 channels or more. VHF Transmitter Capability — 20 channels or less; 21 thru 180 channels; 181 or more channels.

ILS RECEPTION CAPABILITY: Localizer; Glide slope; Marker beacon.

TRANSPONDER EQUIPMENT: 64 code; 4096 code; Altitude reporting.

NAVIGATION EQUIPMENT: VOR Receiver — One; More than one. Distance Measuring Equipment (DME). Automatic Direction Finder (ADF). Weather Radar. Approved Area Navigation Equipment — Advisory Circular 90-45.

K. LONG TERM (3+MONTHS) LESSEE/OPERATOR IF NOT OWNER — CURRENT LESSEE/OPERATOR'S NAME — STREET ADDRESS — CITY — STATE — ZIP

L. HOURS FLOWN BY THIS AIRCRAFT-JAN. 1-DEC. 31 LAST YEAR (Report whole hours (not fractions) while you owned this aircraft.)

EXECUTIVE (Corporate flying by professional pilots)	
BUSINESS (Individual flying for business reasons)	
PERSONAL (Individual flying for personal reasons)	
AERIAL APPLICATION (Agriculture, health, forestry)	
INSTRUCTION (Excludes proficiency)	
AIR TAXI (Part 135 operations including charter services)	
INDUSTRIAL/SPECIAL (Patrol, survey, photo, hoist, etc.)	
AIRCRAFT RENTAL BUSINESS	
OTHER (R&D, demonstrations, sport parachuting, etc.)	
IF YOU OWNED THIS AIRCRAFT LESS THAN 12 MONTHS LAST YEAR, SHOW PREVIOUS OWNER'S HOURS BETWEEN JANUARY 1 - DECEMBER 31 HERE	
IF AIRCRAFT NOT FLOWN LAST YEAR, CHECK HERE ☐	

AC FORM 8050-73 (1-70) — Form Printed by NCR Co. (Chicago)

After completion & signature mail the original copy to: Department of Transportation, FAA Aircraft Registry, AC-259, P. O. Box 26045, Oklahoma City, Okla. 73126

Aircraft are **registered** with FAA; you pay **taxes** to IRS. **Left**—AC Form 805-1. A Certificate of Registration is awarded upon proper submission of AC Form 8051-1 to FAA. A fee (not a tax) of $5 is charged for this certificate. Certificate is good until the aircraft changes hands.

Above, right—AC 8050-73 is a registration **eligibility** report which must be submitted each year before July 1 to FAA. It describes the present condition and ownership of the aircraft and forms the basis of an annual census. There is no fee.

Above, left—IRS Form 4638, Federal use tax return, must be filed each year with Internal Revenue Service for any powered civil aircraft used during the year.

income tax deduction for taxes paid on the fuel so used, on the basis of a supporting statement from the applicator. Others entitled to exemptions from fuel taxes on general aviation aircraft (see table) may obtain their refunds in the same manner.

Operators who maintain their own fuel supply tanks are liable for the tax, unless their retailer pays it.

As an alternative, tax-exempt aircraft operators may register with the Internal Revenue Service on Form 637-A and obtain tax-exempt certificates. (The seller must also register with the same form.) Each time a tax-exempt purchase takes place, the buyer leaves a completed Exemption Certificate with the seller, entitling the former to an exemption of seven cents per gallon on kerosene and three cents on gasoline. The remaining four cents per gallon on gasoline is actually a manufacturing tax, not a sales tax, and may only be claimed on the income tax form.

Aircraft defined in the table as engaged in commercial air transport are not liable for the fuel tax but are subject to passenger and freight taxes. Passengers who travel over international waters bound for a foreign port, or any destination more than 225 miles from the U.S. border, are charged a head tax of three dollars on departure. Other passengers are subject to an eight percent tax on their ticket or charter purchase. A five percent tax is added to domestic air freight billings. The ticket and waybill taxes both apply fully when the destination is less than 225 miles from the land borders of the 48 adjacent states.

FAA planners expect to see general aviation contributing less than one dollar in taxes under the new legislation for every ten dollars paid on commercial air transportation. All revenues will go into an Airport and Airways Trust Fund, to be used, subject to appropriation by Congress, for building new airports and improving others; and for modernizing and expanding the nation's air navigation facilities. ■

More than 30,000 women are now eligible to fly airplanes. Is flying more "unnatural" for females than for men—are they a safety hazard? Statistics say no.

HOW SAFE IS THAT LADY IN THE COCKPIT?

The Musketeer swooped in for a neat three-point landing, rolled out briefly and then bumped along on a battered prop as the nose wheel collapsed. Emergency equipment roared out to the runway and stood by with fire extinguishers as an embarrassed young thing in a semi-miniskirt stepped unhurt from the cockpit. The airport manager groaned as he heard the news, knowing that the runway would be closed for at least an hour while an investigation of the accident was being carried out.

"Female flyers! Typical! She was probably reaching for a lipstick instead of holding back on the wheel. They aren't made to fly!"

Are they or are they not? Is a woman constitutionally less capable of flying safely than a man? Is the downgraded "woman driver" of the automobile world a clue to the reliability of the female in the left-hand seat of an airplane? Do women dent wingtips as regularly as they are supposed to bend fenders in supermarket parking places?

Aircraft accident statistics, at a cursory glance, appear to suggest the opposite conclusion.

WOMEN PILOTS—AIR ACCIDENTS 1968

All pilots		**691,695**
Women pilots		28,401
% of pilots who are women	4.1%	
Total Accidents		**5,039**
Accidents involving women pilots		125
% of accidents involving women	2.5%	
Fatal Accidents		**707**
Fatal accidents involving women		10
% of fatal accidents involving women	1.4%	

From NTSB records.

Viewed from another angle, we could say that in 1968, when the ratio of female pilots to males was 1 to 24, the ratio of women pilots involved in accidents versus males was 1 to 39. With fatal accidents, the ratio was 1 to 70. It would appear that your chances of surviving an airplane ride with a female driver are about three times as good as they are with a man at the controls. (Latest automobile figures also favor women. In the same year, there were about two women drivers for every three men: the ratio of women to men involved in accidents was about *one to three*.)

The statistics are interesting but inconclusive, of course, since they tell us nothing of aircraft utility on the part of male versus female pilots. Until such data is developed, accident analysts can only say that there is nothing in the accident records that supports the widespread notion that women are by nature less capable flyers than men.

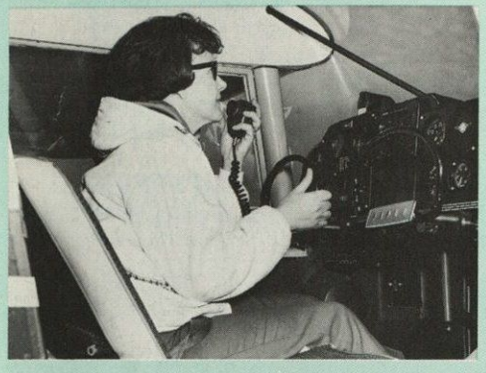
Feminine timidity leads to taking fewer chances. Women have handled every type of aircraft successfully, including jets and 'copters. Young grandmother at the right is Mrs. Lauretta Foy, 10,000 hour chief pilot for Southland Helicopters, Long Beach, Calif.

What about biological data? Not even the most insistent egalitarian would deny that certain physiological and psychological traits predominate more in one sex than in the other. In general, men are physically stronger, bolder and more imaginatively resourceful than women.

Physically, of course, there is no question but that men are larger and stronger than women on the average. Certainly, there was a point in aviation history when physical strength and endurance were vital to handling aircraft safely, but this is no longer true except in a comparatively few and fast disappearing aircraft. Power-assisted controls have made the dainty grandmother as much at ease in the cockpit of the typical modern general aviation aircraft as she is behind the wheel of her 360 hp automobile.

There are still occasions, of course, when muscular strength is important—when the hydraulic system fails and the landing gear has to be cranked down by hand; when an engine has to be handpropped; or when severe turbulence has to be bucked. But with foresight these circumstances can usually be avoided. Superior strength has to be counted as an advantage for the male pilot, but it is not an overwhelming factor. (A counter factor is the lower incidence of heart attacks among women in certain age groups.)

"And this is a—dipstick? And you put it right down inside, sort of like taking the baby's temperature?" Below—with a few hundred hours under her belt the lady in the cockpit is all business.



A large capacity for attending to small details is a built-in safety advantage. The ladies have it, according to medical opinion.

Men are considered better coordinated physically than women, as measured by competitive sports, at least, and are believed to have quicker, more accurate reactions than women; but the latter point is not scientifically documented. As regards visual acuity, a highly important factor in flight safety, medical evidence does not disclose any advantage for either sex.

Men are generally credited with a greater ability to absorb and utilize technical information than women. Men are also believed to possess the ability to remain mentally alert to a given situation longer than women, whose minds are expected to wander more readily. And men are credited with greater imaginative resourcefulness, an important trait for coping with inflight emergencies. But many of these attributes are socially conditioned and do not reflect an accurate measurement of feminine abilities.

On the other hand, the consideration that women are more prone to be creatures of habit is a point in their favor, since flight safety depends heavily on *correct habitual behavior*. In many kinds of workaday occupations women have shown a superior ability to attend to many small details. (Japanese women are famous for excelling in electronics assembly.) This trait is invaluable in preflight inspection and other unimaginative and tedious but necessary procedures.

In the realm of emotions, the traditional male courage and daring are not as important for safe flying as they are for experimental test work or pioneer flying. To be sure, the element of fear is probably always present to some degree in the cockpit aloft, and perhaps men are better able to cope with this emotion than women, but fear is also a great preventer of accidents. Boldness may lead to penetrating storm areas with fatal results, when womanly prudence would insist on a timely 180° turn.

Daring may lead to "stretching" the ceiling of an aircraft or its fuel range, leading to an encounter with a mountain top or a forced landing, when feminine timidity or prudence would have called for turning back or landing sooner. Fearlessness could lead to buzzing or unsafe aerobatics, ending in an abrupt encounter with the ground, when female faint-heartedness would have restrained this kind of exhibitionism. Masculine impatience could lead to a takeoff in spite of an imperfect engine or radio, where ladylike logic would decide that tomorrow will do just as well as today for the flight.

In sum, the aggressive traits of pioneering flyers who made aviation succeed in spite of its early terrors may be the kind of traits which contribute to accidents today. Their counter-traits, often possessed in great abundance by women, may be more significant in reducing accident statistics.

A recent analysis of women involved in dents by class of pilot and by age bracket turns up two interesting facts: nearly half of the women pilots involved were student pilots; and the safest age groups by far for women pilots are under 20 or over 50. The preponderance of female *student* pilots in the accident lists suggests that there is an initial (perhaps culturally induced) mental barrier which must be overcome before a woman feels at home in the cockpit.

A study of the *kinds* of accidents that involve women appears to support the conclusion that lack of experience and confidence rather than lack of any essential flying ability causes the problems.

The great majority of these accidents were in the landing or takeoff phase of flight; i.e., ground-looping, failure to recover from a hard bounce, loss of directional control, etc.

PILOTS INVOLVED IN ACCIDENTS, 1969

All Pilots	By Class of Pilot	Women Pilots
17%	Student	42%
45%	Private	39%
35%	Commercial	19%
03%	ATR	0%
100%		100%
	By Age of Pilot	
03%	Under 20	08%
26%	20 - 29	21%
30%	30 - 39	36%
28%	40 - 49	25%
13%	Over 50	10%

Women appear to take safety more seriously than male pilots. Whether this is because they are more impressed with their own fragility or less impressed with their economic or scientific status (physicians are one of the most accident-prone groups of pilots), the fact remains that women appear to take greater precautions to ensure a happy conclusion to every flight. Even when racing competitively, safety considerations are not stinted. The Powder Puff Derby, for example, a strenuous cross-country race for female pilots, has never had a fatal accident in its 25-year history. Luck may be a lady, but race officials believe that planning and the insistence on high qualification standards are the key reasons for this impressive record.

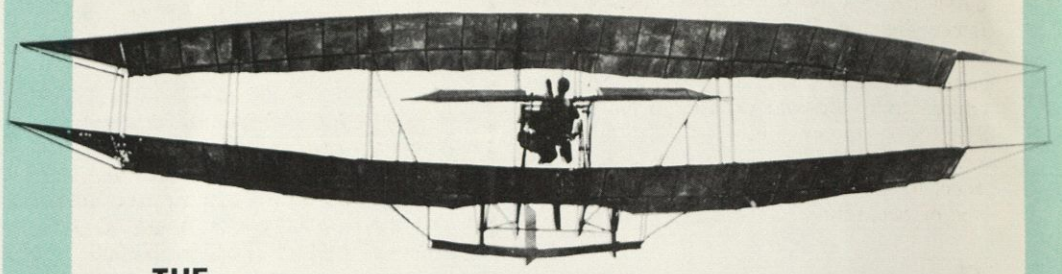
Every entrant in the Powder Puff Derby must have at least a Commercial certificate (or Instrument or Instructor rating) and each aircraft must meet rigid standards. (The effort of a few pilots to gain a slight increase in airspeed by removing their rotating beacon recently brought about a rule prohibiting this.) Race flying is restricted to VFR weather and each year there are innumerable pre-race briefings given and classes held on the route to be flown.

To avoid the rapid taxiing, hurried takeoff and landing procedures associated with the "time-clock rule" (elapsed time counting from start of taxi roll to touchdown), the rule was changed to time arriving aircraft during a flyover and departures from the start of wheel roll. To discourage pilots from taking chances of flying too high too long without oxygen, all pilots have been required to have supplemental oxygen on board. The list of precautions goes on and on.

Although pilots may complain occasionally about the constantly expanding morass of red tape surrounding the race, the native prudence of the female of the species produces a general agreement that even in an air race safety must come first, and there is never any lack of qualified entrants.

How safe a pilot is that young lady in the cockpit? A lot safer that you might have guessed, and perhaps safe enough to turn a long standing symbol of masculine superiority into a passing myth. ■

Famous
FLYERS



THE FASTEST MAN OF THE EARTH AND SKY

On a grassy plain near Rheims, France, in 1909, a young American described by the press as "a typical country bumpkin" took up the challenge spurned by Wilbur and Orville Wright and competed with the foremost aviators of Europe in the first important international air meet. Glenn Curtiss's astounding victory for the "Coupe Internationale d'Aviation" served notice to the world that America was to become the cradle of aeronautical science as well as the birthplace of powered flight.

A contemporary of the Wright brothers and like them originally a bicycle shop proprietor. Curtiss was catapulted into the front rank of aviation pioneers largely because of the Wrights' disdain for public flying exhibitions. Although the business interests of the two families were inevitably to merge, their personal relationship was permanently embittered following lengthy patent disputes in the courts. In his own time, Curtiss was by far the more popular figure among aviation enthusiasts, but the dust of history which has settled over the early days of flying has almost obliterated his memory from the popular mind.

Glenn Hammond Curtiss was born on May 21, 1878, in Hammondsport, then a pleasant village in upstate New York. Speed was his earliest passion and he was never to be contented in a race in any place but first. He raced bicycles as a youth, his lanky frame suiting him well to this sport, until the day he lost his first competition at a state fair in 1900.

Then 22, already married and proprietor of three bicycle shops, he abruptly shifted his attention to the new motorcycles being developed. Within a few months, he was racing motorcycles that he had built himself—and setting national records. Curtiss's motorcycle factory soon put Hammondsport on the map as a speedster's mecca. The Curtiss motorcycles carried his name and reputation all over the country, eventually attracting the attention of "Captain" Thomas Baldwin, a famous balloonist, who was seeking a better engine for a newly designed dirigible. Baldwin succeeded in persuading Curtiss to tackle the problem of producing a more dependable engine with a greater horsepower per weight output than was then available in the market.

Curtiss's first "aircraft engine" was so successful that for the first time a U.S. dirigible could be steered around in a perfect circle in the sky. Baldwin was delighted and proclaimed the genius of Curtiss to all who would listen. In a short time the countryside around Hammondsport was dotted with dirigibles moored to the earth and waiting for Curtiss engines to be installed.

In the winter of 1906-07 Curtiss completed a powerful new engine for a Baldwin dirigible but was unable to test it because the state was in the grip of a winter storm. He promptly shipped the engine to Florida, mounted it on a specially built motorcycle, entered a race conveniently being held at nearby Ormond and drove it to a world record for a mile course—136.3 miles per hour.

Above—the **June Bug** in which Glenn Curtiss made the first official one mile flight in America on July 4, 1908. The movable triangular wingtips were the cause of a drawn-out patent dispute with the Wright brothers.

Right—Curtiss sits at the controls of his 1910 water-cooled "headless" pusher.

Curtiss's final conversion to aeronautical engineering began in 1907, when he was persuaded by Alexander Graham Bell to join his celebrated Aerial Experimentation Association, a small group of advanced thinkers dedicated to the production of a flyable powered aircraft. After a number of experiments and endless hours of nightly discussion in Bell's "thinkorium," the group produced a small bi-plane powered with a Curtiss eight cylinder, 24 hp engine in 1908.

Called the *June Bug* because its first flight resembled that of the insect, the aircraft had such innovations as the first wheeled landing gear (a tricycle type landing gear at that), hinged ailerons, and a specially coated cotton fabric for the wing surfaces. The ailerons formed a triangle at either wing tip and were attached by cable controls to a harness around the body of the pilot.

The aircraft measured 43 feet from tip to tip and the two wings provided a total supporting surface of 370 square feet. The engine, accessories and propeller weighed 192 lbs.

On July 4, 1908, Glenn Curtiss was awarded the Scientific American Trophy for making the first officially recognized public flight in America, flying the *June Bug* one kilometer—3,280 feet. (The Wright brothers' first flight at Kitty Hawk, almost five years earlier, was not considered "official" in that no recognized aeronautical body had witnessed it. As the Wrights had declined to compete for the trophy, its sponsor, the Aero Club of America, awarded Curtiss the first pilot's license in the United States.)

A year later Curtiss again had his name inscribed on the cup for a flight officially covering 24.9 miles in 52.5 minutes in the *Gold Bug*, a smaller successor to the *June Bug*.

Because of these victories, the Aero Club of America persuaded Curtiss to represent the United States in the Great Aviation Week competition on August 22-29, 1909, near Rheims, France. For the first time in history, flyers and flying machines would be gathering from all over the civilized world to compete in altitude, endurance, speed and distance races. The high point of the

week was the $5,000 "Coupe Internationale d'Aviation," a purse to be presented by James Gordon Bennett, publisher of the New York Herald. The Wright brothers, originally nominated for this honor, had refused to participate on the grounds that these rules favored aircraft with wheels, whereas they were committed to aircraft launched from tracks or special catapult type of apparatus.

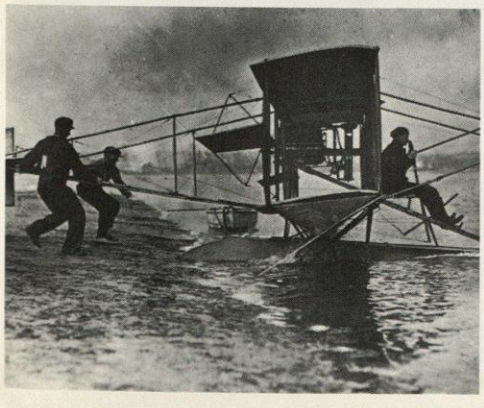
Curtiss's entry at Rheims, called the *Golden Flyer,* was very similar to his *Gold Bug* but with an 8-cylinder V-shaped 50 hp engine. The *Flyer* arrived in France packed in what appeared to be over-sized suitcases, hand carried for reasons of security. Curtiss himself, wearing a chauffeur's hat and dressed in something less than the highest Paris fashion, made a poor impression on the European dignitaries gathered at Rheims for the meet.

But Curtiss was determined to win. He knew that the competition, consisting of such famous aviators as Bleriot, Latham, and LeFebvre of France, and Cochran of England, had greater flying experience than he and perhaps faster machines. Still, Curtiss himself was no novice at the art of coaxing the last ounce of effort out of a speeding vehicle. His strategy consisted of making his flight early in the morning while the air was cool and at maximum density. By a steel-nerved technique of flying close to the ground and diving his aircraft at the pylons while turning, he saved precious seconds of time and managed to cover the 20 kilometers course in 15 minutes, 30¾ seconds—a new world record, 25¾ seconds faster than the second best pilot in the race, Bleriot.

Later in the week, he won a second speed race, the "Prix de la Vitesse" and left France with $8,000 in cash prizes. The Press called him *"The Fastest Man of the Earth and the Skies"* (his motorcycle speed record for the mile had not yet been broken), and crowds everywhere showered him with adulation. ■

(The concluding half of this article will be published in the November issue)

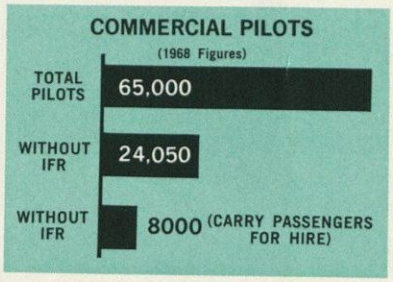
The trial flight of Curtiss's **Triad** which was responsible for the start of Naval Aviation in the United States.



Pilot BRIEFS

■ INSTRUMENT TICKET FOR COMMERCIAL PILOTS? An IFR rating has been urged for all pilots who carry passengers or cargo for hire. The recommendation was made by an independent consultant firm engaged by the Federal Aviation Administration to study the flight habits of pilots with commercial certificates.

The study indicated that about 37 percent of the commercial pilot population (over 65,000) do not have IFR ratings even though some of them occasionally fly under instrument conditions. Failure of non-IFR pilots to adhere to visual flight rules was described as a serious hazard to safety in commercial operations. Lack of currency was also cited as a problem; about 13 percent of the for-hire pilots did not fly at least three months out of the year.



The study also stated that only about one out of four commercial pilots uses the Airman's Information Manual regularly; the majority are not fully informed about equipment and procedural changes affecting their flight. Very few of the pilots give any serious consideration to density altitude. A significant number rarely bother to compute gross takeoff weight. More than half of the pilots studied had made landings with 90 degree plus crosswinds of 20 knots or more. Investigators felt that a proficiency distinction should be made between for-hire and not for-hire commercial tickets.

■ NO TCA AT DCA. Terminal Control Area procedures for Andrews A.F.B., and Washington National Airport have been suspended indefinitely, pending restudy of local air traffic problems. However, under the high density rule, advance reservations at Washington National (as well as at Chicago's O'Hare, Newark, La Guardia, and John F. Kennedy airports) will continue to be required at least until October 27. The reservations system has reduced delays by about 30 percent, with only a 5 percent drop in air traffic.

■ ATLANTA VISITORS NOTE! Postpone your visit to the Atlanta tower's IFR room until after January 1, 1971. Tower computers are being replaced with more sophisticated equipment to handle increasing traffic and to develop an automated metering and spacing system for air traffic at high density airports. Anticipate the same courteous service as ever from the controllers, but do not drop in to chin—wait till next year. Official visits should be coordinated with ATC Procedures Branch, RD-150, at FAA headquarters, telephone (202) 962-7176.

■ VFR UNDER THE CLOUDS. FAA is studying comments on a proposed rulemaking action concerning VFR flight within a control zone. Under existing Federal Aviation Regulations Part 91.105(c), a VFR pilot (maintaining proper cloud separation) may enter a control zone under a cloud layer at any altitude if the cloud cover is less than six tenths of the sky. The proposed change would alter the language to prohibit VFR flight in control zones under any degree of cloud obscuration 1,000 feet or less above ground.

Aircraft dispatcher and pilot go over figures establishing weight and balance configuration. Numerous accidents every year have been traced to failure to check cargo weights.

New Data on Aircraft Weight and Balance, Alterations

New information on the proper method for determining weight and balance of aircraft and for altering aircraft is available in two recent FAA publications.

"The Pilot's Weight and Balance Handbook" (Advisory Circular 91-23) gives particular attention to the loading problems of a general aviation pilot when operating light aircraft or twin-engine air taxi types. The handbook is sold for 70 cents by the Superintendent of Documents, Washington, D.C. 20402.

Advisory Circular 43.12-2 CHG 8 is a supplement to a previously released booklet on "Acceptable Methods, Techniques, and Practices—Aircraft Alteration." The principal changes in the new publication include additional data in Chapter I pertaining to static loads, static tests and weight and balance, and a new chapter on structural design considerations for fabrication and installation of aircraft litters, berths, and cargo tiedown devices. AC 43.12-2 CHG 8 is available free from DOT/FAA Distribution Unit, TAD 484.3, Washington, D.C. 20590.

General Aviation Pilots, Mechanics to Outstrip Airlines

Pilots employed in general aviation will soon outnumber air carrier pilots according to estimates of a Bureau of Labor Statistics study published by the Department of Labor. The projection showed approximately 134,200 mechanics in these two fields of aviation—nearly two mechanics for every pilot—by 1972.

By far the greatest number of general aviation pilots will be employed in executive transportation—19,100. Air taxis will be second, with 10,800 pilots on the rolls.

Future projections showed a slight reduction in employment for both mechanics and pilots over the next two years, followed by a sharp climb over the next five years.

The report, "Pilots and Mechanics in Aviation, 1967-77," is sold by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The price is $1.

AVIATION EMPLOYMENT PROJECTION*

Occupation and Civil Aviation Sector	Estimated Employment Requirements		Net Growth
	1972	1977	1973-77
Pilots	**79,700**	**109,700**	**30,100**
Air carrier	38,100	51,100	13,000
General aviation	39,200	55,700	16,600
Government**	2,400	2,900	500
Mechanics	**134,200**	**163,900**	**29,700**
Air carrier	61,000	70,000	9,000
General aviation	72,100	92,800	20,700
Government**	1,100	1,100	—

* Totals rounded—may not tally exactly.
** Excludes DOD civilian employees as well as military personnel.

Helicopter Scholarship Offered

A $500 scholarship for helicopter training will be awarded in January to an outstanding woman pilot by the Whirly Girls, an international organization of women helicopter pilots.

Women applying for the Doris Mullen scholarship fund must have an airplane pilot certificate. Application blanks and further information may be obtained from The Whirly Girls, Suite 700, 1725 De Sales Street, N.W., Washington, D.C. 20036. Deadline for applying is October 30, 1970.

Guidelines Available on Transporting Radioactive Materials in Aircraft

FAA has published an information guide for air cargo handling of radioactive materials, AC No. 103-2, detailing shipper, aircraft operator and pilot responsibilities.

Approximately one-half million packages of radioactive materials are transported by air every year in the United States. Most of the shipments contain short-lived radioisotopes, intended for diagnostic use by doctors or in hospitals. According to the FAA circular, no aircraft operator may knowingly accept a package for shipment unless it is accompanied by a clear and visible shipper's certificate indicating full compliance with all applicable regulations of the Department of Transportation.

The aircraft operator must notify the pilot in command of the aircraft whenever radioactive cargo is loaded, giving the name, type of label, quantity and location of the package. The cargo load manifest must be conspicuously marked to show the presence of potentially dangerous material.

Advisory Circular 103-2, "Information Guide for Air Carrier Handling of Radioactive Materials," is available free on request to the DOT Distribution Unit, TAD 484.3, Washington, D.C. 20590.

SAVE THE CHILDREN. A survival life support system for infants and small children who may be the victims of an aircraft ditching at sea is being tested at FAA's Protection and Survival Laboratory, Aeronautical Center, Oklahoma City. The device is designed to be self-righting, thermally protective to limit heat loss, and self-ventilating.

FAA Aviation News welcomes comments from the aviation community. We will reserve this page for an exchange of views. No anonymous letters will be used, but names will be withheld on request.

• Army 'Copter Pilot for Hire

I am an Army helicopter pilot with a commercial license and will be getting out in seven months. Where and to whom can I write for employment after the service? I am single and willing to go anywhere in the world.

CW 2 Stephen J. Carlson
APO 09025

You can write to National Aviation Trade Association, 1725 K Street N.W., Washington, D.C., and to Helicopter Association of America, Hangar D, Westchester County Airport, White Plains, New York 10604.

• Electronic Test Set

Do you have a wiring diagram for a universal test set for communications, navigation, and transponder equipment that you could send me?

Kenneth Doran
Palmyra, Penna.

To the best of our knowledge such a test set does not exist. However, you might try writing to the professional radio society, Aeronautical Radio, Inc., 2551 Riva Rd., Annapolis, Md. 21401 for additional information.

• Airport Management

I am interested in exploring employment opportunities in the airport management field. My interest is primarily in larger municipal or international airports rather than fixed base operations. Can you supply me with the names of professional associations of airport managers, addresses, chief executives etc?

Michael R. Gallagher
Captain, US AF
APO San Francisco

You might write to Russell Hoyt, Executive Director, American Association of Airport Executives, 2029 K Street, N.W., Washington, D.C. 20006, and Donald Reilly, Executive Director, Airport Operators Council, Inc., 1700 K Street, N.W., Washington, D.C. 20006.

• Fire Aloft

Of the possible emergencies that could arise in flight, such as engine or structural failure, icing, etc, there is one that I'm particularly concerned about—an engine fire. I'd feel a lot better if there was a handle somewhere in the cockpit that if pulled would fill the engine compartment with foam.

Fire extinguishers are ridiculously inexpensive, considering their lifesaving value. I suggest that FAA require them installed on all aircraft produced in the future. If I'm overstating the dangers involved please let me know.

Jurgen Fohlmeister
Minneapolis, Minn.

Fire in flight is a relatively infrequent occurrence; in 1969 there were 11 such fires out of a total of 4,929 accidents involving small aircraft, or an incidence rate of less than 0.2 of one per cent of all accidents.

It is partially because of this relatively good record that powerplant fire extinguishing systems are not required in general aviation aircraft. The airworthiness standards require the use of a number of other fire protection measures such as approved fire-resistant lines and fittings, shutoffs for flammable fluids, proper drainage of cowling, isolation of engines and other combustible equipment from the rest of the airplane, fireproof firewalls and shrouds, and fire-resistant cowling. Fire detection systems, together with means for cutting off fuel to the affected engine, are required in turbine aircraft.

• Pattern Altitudes

I read with great interest your recent article "Seen and Unseen" delving into the problem of mid-air collisions around the airport. While a student, I had the experience of not seeing a plane under me and almost landed on top of him. Now I am concerned about a situation at Danbury Municipal Airport, Conn., that is a real hazard. Although the field elevation is 457 feet, pattern altitude is 1500 feet, not 457 plus 800 or 1257 feet (because of hills around the airport). Nowhere on the sectional chart, in NOTAMS, or AIM, is this specified. New pilots coming into this airport often fly the pattern *under* local planes.

It seems to me that if pattern altitude is something other than normal it should be printed somewhere. To what agency does one report this? Another problem airport is Mahopac, New York, where because of a noise abatement ordinance pattern altitude is also higher than normal. I certainly would appreciate some recognition of this situation and something being done about it.

Alice G. Katz
Katonah, New York

Describe the problem to the Air Traffic Division, EA-500, FAA/DOT, JFK International Airport, Jamaica, New York 11430. The Air Traffic representative will review the requirements for both airports. If it is determined—after coordination with airport management and other interested parties—that publication of traffic pattern altitude information for Danbury and Mahopac Airports is desirable, this will be included in the Airport Directory of the Airman's Information Manual.

• Weight Watcher

Concerning "Runway Weight Bearing Capacity" limits as published in the Airman's Information Manual, for single, twin, and twin-tandem type landing gear: who establishes this limit, and what does it mean?

If no MAX limit is published would the weight listed for twin-tandem of say 170,000 pounds be the maximum allowable gross weight of an aircraft using that runway?

Jack Koeneman
Virginia Beach, Va.

The "Runway Weight Bearing Capacity" is based on a detailed pavement data survey made by FAA. The values published for single, twin, and twin-tandem type landing gear are coordinated with the airport owner before being published in AIM or the Airport Data System. The values mean that under normal circumstances the pavement will support operation by aircraft of that gross weight day after day without distressing the pavement.

The owner retains the option to limit aircraft operations to a specified maximum weight to protect the pavement. Such limitation is noted in the AIM as "MAX." Changes in weight limits are published in NOTAMS.

Yes, a listing of twin-tandem 170,000 pounds means that is the maximum allowable gross weight of an aircraft with twin-tandem gear permitted on that runway.

• PAMA Address

Your June 1970 issue contained an article on mechanics, "Heroes of the Hangar," which mentioned a Professional Aviation Mechanics Association. Where can I contact them?

Berge K. Jermakian
Jamaica, New York

You can write to: Professional Aviation Mechanics Association, P.O. Box 2276, Newport News, Virginia 23602.

• Not Nice to Van Nuys

I read with interest your article "Seen and Unseen II" (April 1970) and noted with particular interest the photograph of two aircraft landing at Van Nuys Airport, California. The photograph utilized is extremely misleading since the aircraft involved in the photograph were NOT maneuvering for the same runway at the same time (as the caption suggests). In fact, there are parallel runways. Van Nuys Airport is an extremely safe airport, although one of the busiest in the world. I would not like you to leave the impression that the airport is endowed with an overgenerous sprinkling of negligent pilots.

Robert N. Cleaves
Los Angeles, Calif.

Van Nuys, a controlled airport with parallel runways, is not at all typical of the airports discussed in the article. The caption was unfortunate.

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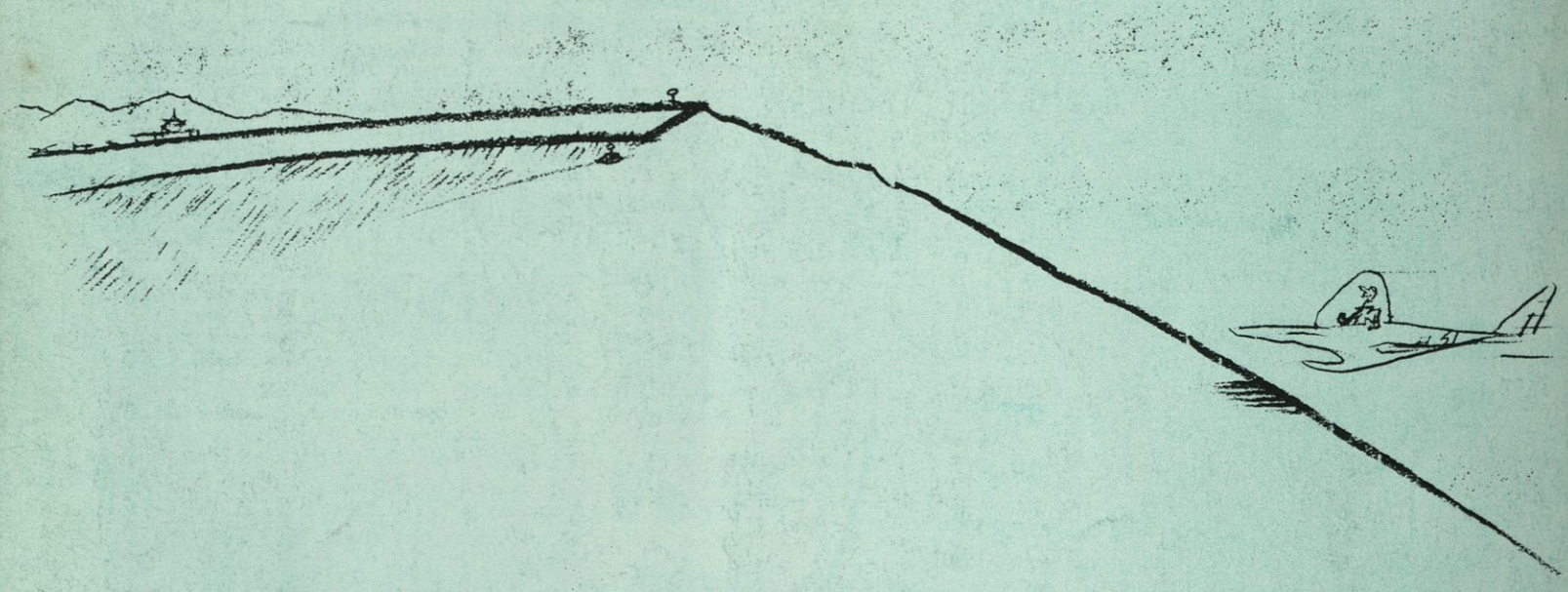

Osborn

Airplane and runway never met

Suggested by Z. W. Kowalewski
FIDO, Anchorage, Alaska